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ABSTRACT

This pocket folder of instructional materials is designed to introduce youth aged 9 to 12 to ornithology, the study of birds. The package includes a 4-H member's guide and a Leader's guide. The illustrated 4-H member's guide contains information about attracting and feeding birds. It also includes activities for cooking for birds, making bird feeders, and identifying birds. A reproducible field record is included to be completed when identifying birds. The leader's guide provides suggestions on activities, safety, and teaching techniques to supplement the member's guide. The remainder of the folder includes the following supplemental material: (1) the field record form; (2) a New York State bird checklist; (3) a chart containing bird-feeding tips; (4) instructions for building a wooden birdfeeder; and (5) a wildlife project for making birdhouses and birdfeeders. (KS)

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EXPERIENCE

4-H NATURAL RESOURCES

Birds in Your Backyard

Janet E. Hawkes
Diane Held Phillips

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4-H Leader's Guide
L-5-17
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Contents

1 Introduction

2 Activity 1. Cooking for Birds

2 Activity 2. Bird Feeders

2 Advanced Activity. Bird Habitat

3 Additional Activities

4 Resources and References

This bulletin was developed to support 4-H programs in New York State.

The authors wish to thank Charles Smith, senior extension associate, Cornell Laboratory of Ornithology, Marianne Krasny, program leader, Cornell Natural Resources 4-H Youth Development, and Glenn J. Applebee, program specialist, Cornell Cooperative Extension 4-H Youth Development, for advice in preparing these materials. They also thank participants at Cornell Cooperative Extension 4-H field-test sites in Chautauqua, Jefferson, Schenectady, and Westchester counties.

This publication was produced with grants from the New York State 4-H Foundation, Inc., and the U.S. Fish and Wildlife Service.

Illustrations by Steve Sierigk and Jethro Abplanalp-Gaede

Janet E. Hawkes is an educational consultant. Diane Held Phillips is an extension associate in the Department of Natural Resources, New York State College of Agriculture and Life Sciences, Cornell University, Ithaca, New York.

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This independent project is part of a series designed to introduce youth to a variety of natural resources subjects by involving them in activities that heighten their awareness of the natural world. Leaders and teachers need no background in natural resources to work and learn with youth on these activities.

Introduction

The purpose of this 4-H project is to introduce youth to ornithology, the study of birds. The project is written for youth aged 9 to 12 years (grades 4 to 6) but can be adapted to meet the needs of younger or older club members.

By participating in this project, young people will develop an awareness of birds present in their locality. They will sharpen their observational skills while learning the anatomy and distinguishing features of birds.

This project uses feeding to attract birds for easy observation. To advance after this project, club members can observe birds in their native surroundings, or they can attract birds by improving their habitat or building nest boxes.

This leader's guide contains material not found in the member's guide to help you teach this project. Suggestions on activities, safety, and teaching techniques are included for your convenience and information. Use the additional material to expand the scope of the project. Included in your leader's folder are a copy of the member's guide, several supplemental project bulletins, a New York State Bird Checklist, and extra field records for members.

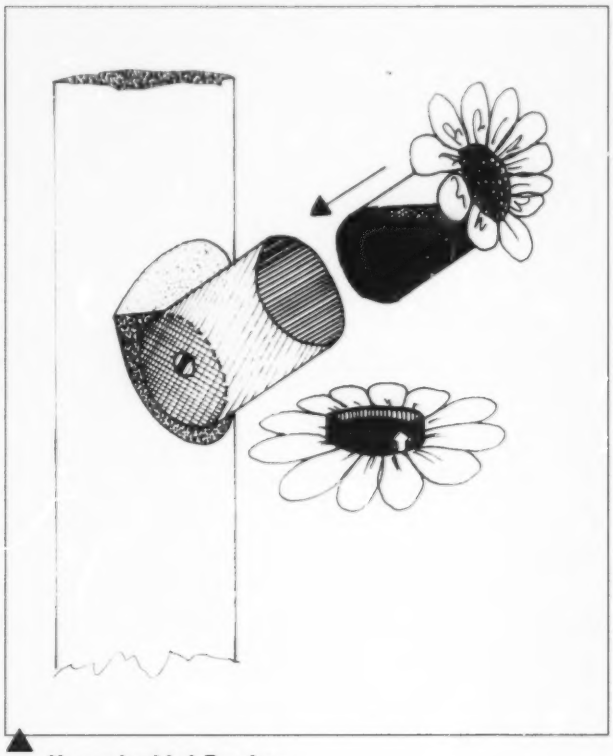
Bird study can be made fun and interesting. All or part of this project can be used with individuals or a club. The activities will increase youth's awareness of our natural world while being enjoyable and rewarding to you as a leader.

Activity 1. Cooking for Birds

The cooking activities in the member's guide should be well supervised because one includes heating fat. Have each member think up recipes using ingredients that birds like to eat (see section on what birds eat). Be sure to feed birds high-fat foods only in the winter when cold temperatures prevent rancidity and melting.

Hummingbird Feeding Solution

A feeding solution for hummingbirds can be made using sugar, water, and red food coloring. Sugar should be dissolved in water to a concentration of no more than one part sugar to four parts water. For example, add 1 cup of sugar to 4 cups of water. Dyeing the feeding solution red with food coloring or using a red feeder helps attract hummingbirds. Various feeders can be used to hold the solution. An example of one is shown here.



Hummingbird Feeder

Plastic pill bottle has bright plastic "flower" cemented to cap; 1/8" hole in flower and cap allows access to sweet liquid; the bottle fits into a larger pill bottle screwed to stake at an upward angle. (Bottle also can be hung by a wire instead of mounting.)

Activity 2. Bird Feeders

Use the enclosed instructions for building feeders with your club. These plans are just suggestions and samples; you may find others you prefer.

This activity should be well supervised when sharp or pointed tools are used.

Suggestions for placement of feeders and foods to offer are provided in the member's guide.

Advanced Activity. Bird Habitat

Birds generally live where a good food supply and adequate nesting sites are available. They prefer the habitat, or local conditions, that best suits their needs for food and shelter.

In addition to feeding birds, you can attract them by providing a desirable habitat. Growing plants that provide food and shelter can increase the local bird population and may provide opportunities for observing birds that do not come to the feeder or nest boxes. Also, knowing what birds are found in a given habitat can help in identifying them. As an advanced activity, you may want to work on habitat improvement with your club members. Sources of information on habitat improvement are in the resources section of this guide.

Additional Activities

- Ask members to count the number of birds they see in one day. This activity will help them become aware of the birds around them.
- At a club meeting, serve a snack with foods that birds like to eat (such as sunflower seeds, peanut butter, or fruit). Discuss which birds eat each food.
- Visit birds in their natural environment by going on an early morning or early evening bird walk.
- Have a bird "olympics." Divide youth into groups and go outdoors to sight birds. Reward the group that spots the most unusual bird, the largest bird, the smallest bird, or the most birds. (Think up your own categories so all of the groups are recognized.)
- Have 4-H members demonstrate to others how to make a bird feeder, how to identify birds, or a related topic.
- Visit a local bird sanctuary, nature center, park, or zoo and see what birds are present. Contact staff members in advance to obtain their advice about how best to use their facility. They usually have helpful ideas and reference materials.
- Maintain a club listing of birds seen during the project and thereafter. The enclosed "New York State Bird Checklist" may be useful for this activity.
- Have a wildlife biologist or other wildlife specialist speak to your club about ways to improve the habitat to attract birds. Do a club project on habitat improvement.
- Have an information booth on birds and bird feeding at the fair, mall, or other public place.
- Have each member learn about a particular species of bird and share this information with the group.
- Listen to recordings of bird songs; make a game of identifying the bird that is singing.
- Have members interested in photography start a collection of bird photographs. Suggest keeping a camera by a window near the feeder.
- A simple activity can show how birds have adapted to perform certain tasks. Have your group count the sunflower seeds that a bird from the grosbeak, finch, sparrow, and bunting family is able to crack open in one minute. (Watch a bird at a feeder.) Members then can count the seeds they are able to open in one minute. This comparison will lead to a discussion of how animals have adapted to live in their environment.
- As a conclusion to the project, have club members talk to the group about their observations and successes.
- Have interested individuals, or the entire club, study birds further by completing one of the 4-H bird projects listed at the end of this guide.

Resources and References

Field Guide Suggestions

Peterson, Roger Tory. *A Field Guide to the Birds East of the Rockies*. 4th ed. Boston: Houghton Mifflin, 1980.

Scott, Shirley, ed. *Field Guide to the Birds of North America*. 2d ed. Washington, D.C.: National Geographic Society, 1987.

Robbins, Chandler S., Bertel Bruun, and Herbert S. Zim. *Birds of North America*. New York: Golden Press, 1983.

Other Resources

1. The following slide sets with scripts are available from Instructional Material Service (IMS), 24 Roberts Hall, Cornell University, Ithaca, New York 14853.

   Birds of Woods, Gardens, and Fields (C2065)

   Birds That Hunt and Are Hunted (C2055)

   Birds of the Wetlands (C2045)

   Posters showing birds in their native habitat also are available from IMS. Contact IMS for current prices and availability.

2. The Cornell Laboratory of Ornithology, 159 Sapsucker Woods Road, Ithaca, New York 14850, has a program called Project FeederWatch, which is a network of individuals in North America who feed birds. Participants record their observations for use by researchers studying bird population trends. Advanced members participating in the Birds in Your Backyard project can join this network by contacting the Laboratory of Ornithology.

3. The Cornell Laboratory of Ornithology has many publications on birds available at its bookstore. Records and tapes of bird songs are available also. Write the bookstore at the address given above for a complete listing.

4. Dennis, John D. *The Complete Guide to Bird Feeding*. New York: Knopf, 1978.

5. Kress, Stephen W. *The Audubon Society Guide to Attracting Birds*. New York: Scribner's, 1985.

6. McElroy, Thomas P. Jr. *The New Handbook of Attracting Birds*. New York: Knopf, 1985.

7. Peterson, Roger Tory, Peter Alden, and John Sill. *A Field Guide to the Birds: A Coloring Book*. Boston: Houghton Mifflin, 1982.

8. "Birds, Birds, Birds!" *Ranger Rick's Naturescope* 1, no. 4 (1986).

Natural Resources Youth Development Program

Environmental Awareness and Issues

Environmental Awareness

Environmental Awareness: Wildlife

Nature Trails: Guides to Environmental Understanding

(Starting a Small Business in Natural Resources)

(Water Quality)

Fisheries and Aquatic Education

Let's Go Fishing

Basic Fly Tying

Exploring Freshwater Fisheries

Let's Go Ice Fishing

If Fish Could Talk

The Great Garbage Chase

Sands, Oceans, and Sailors

Aquatic Activities for Youth

Water Worlds

(Aquatic Education Manual)

Forestry

Know Your Trees

4-H Wood Sample Collection

What's a Tree to Me

Trees from Seeds

Tree Planting

Backyard Maple Sirup

Understanding Forest Ecosystems

Firewood: From Woodlot to Woodpile

Forestry A: Trees

Forestry B: Forests

Forestry C: Forestry

Northeast 4-H Forestry Project

(Introduction to Forestry)

Wildlife

Bird Study: An Introduction to Ornithology for Youth

Bluebirds in New York (currently being revised)

Nest Boxes for Wood Ducks

NYS DEC Pheasant Rearing Guide

Understanding Birds of Prey

Southwest 4-H Wildlife Projects

Wildlife Habitat Enhancement

Trapping Furbearers DEC Student Manual

Shooting Sports

Birds in Your Backyard

(Introduction to Wildlife Principles)

(Urban/Suburban Wildlife Habitat Improvement)

Note: *Projects in parentheses are being developed.*

Program Philosophy

The 4-H Natural Resources Program provides educational programs for adult volunteers and youth using the research and knowledge of Cornell faculty and students in the Department of Natural Resources. The educational programs can be divided into three categories: (1) Natural Resources Awareness projects encourage youth to make personal discoveries about their local environment. (2) Ecology and Management of Natural Resources projects promote understanding of the scientific principles involved in managing our natural resources. (3) Environmental Issues projects train youth to become better decision makers about issues relating to environmental problems.

Program Sequence

No rigid sequence of projects is built into the program, but a logical flow from awareness through understanding to involvement and leadership exists. Natural Resources Awareness level projects provide the foundation for the more advanced Ecology and Management of Natural Resources and Environmental Issues projects. Advanced 4-Hers with an interest in natural resources are encouraged to attend the annual Natural Resources Youth Action Program at the Arnot Forest, during which they receive intensive training in natural resources subject matter from Cornell faculty and students.

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4-H NATURAL RESOURCES

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4-H Member's Guide
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Contents

1 Introduction

1 Attracting Birds

3 Feeding Birds

6 Activity 1. Cooking for Birds

Seed Cakes

Birdseed Mixture

Bird Food Necklace

7 Activity 2. Bird Feeders

Simple Pine Cone Feeder

Log Suet Feeder

Simple Jug Feeder

Suet Feeder

10 Identifying Birds

11 Activity 3. A Field Record of Birds

13 Activity 4. Project Story

13 Other Projects

This bulletin was developed to support 4-H programs in New York State.

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Introduction

Have you ever watched a bird fly, pull a worm from your garden, or crack seeds with its beak? Watching birds not only is fun and interesting but also teaches you a lot about how birds find food, what they like to eat, and where they live. You can enjoy watching birds in a park, field, or wooded area near your house, or you can attract birds to your own backyard. As you watch birds, you will notice differences in their size, shape, color, and markings.

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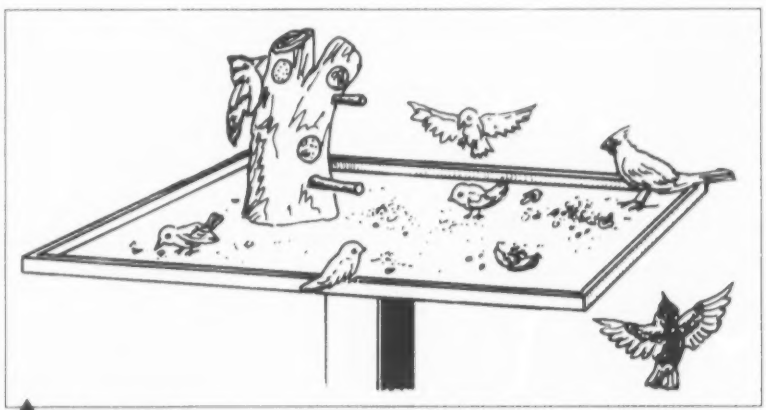
Attracting Birds

You can watch birds in their natural homes or you can attract them to you. There are three ways to attract birds:



1. Feed Birds

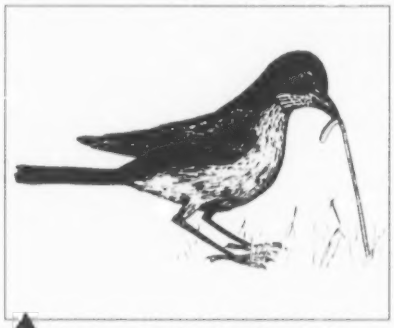
2. House Birds

3. Make a Natural Home for Birds

Feeding birds is the easiest way to get a close view of them. Birds like to eat seeds, high-fat food, fruit, or sugar solutions. Some eat insects and some eat animals. Below are examples of birds that eat different foods.

Birds' bodies are built to help them get the foods they need. For example, sparrows and grosbeaks have thick beaks to crack seeds, and their legs are good for perching. Hawks and owls have sharp beaks and talons for tearing meat. Flycatchers and swallows, which are fast and artful flyers, are able to catch flying insects.

▲ **Seed-eating birds**
(sparrows, grosbeaks, cardinals)
Most seed-eating birds also eat insects in the summer.



▲ **Plant- and animal-eating birds**
(starlings, robins, ducks, geese)

▲ **Animal-eating birds**
(hawks, owls, herons)

▲ **Nectar-eating birds**
(ruby-throated hummingbirds)

▲ **Insect-eating birds**
(flycatchers, swallows, woodpeckers)

12

Feeding Birds

You can buy premixed bird food from the store or mix your own, often using ingredients found at home. Here are a few suggestions:

- Black oilseed sunflower seeds have more energy than other sunflower seeds and are a favorite of black-capped chickadees, blue jays, and cardinals.
- Small seeds such as white millet, cracked corn, and canary seed are eaten by sparrows and goldfinches.
- Fruits such as chopped apple, banana, and raisins are liked by robins, cedar waxwings, and catbirds.
- Suet is beef fat and is available at meat markets and grocery stores. Insect-eating birds such as woodpeckers, chickadees, and nuthatches love to eat this high-energy food. Please do not offer suet in the summer, however. It can become rancid and make birds sick.
- Peanut butter and bacon fat are other foods that suet-eating birds like to eat. (Again, offer only in cold weather.)
- Sugar solution in a special feeder attracts ruby-throated hummingbirds.

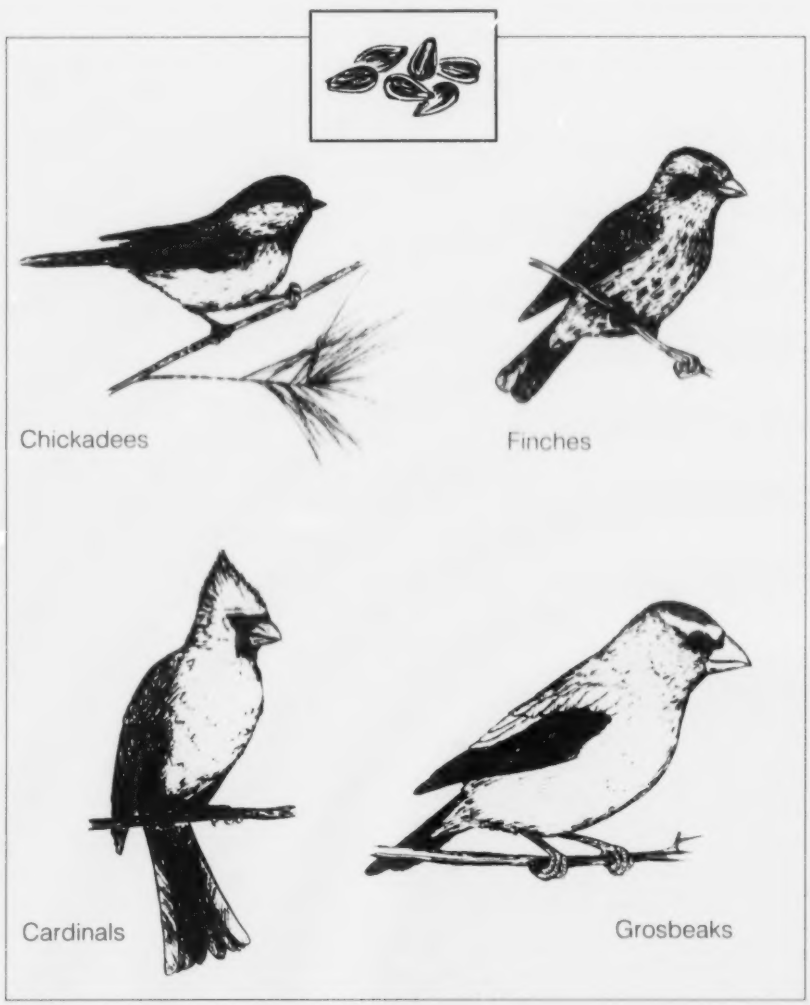
A Note about Water

Birds need water to drink just as you do. If your feeder is not near a source of water, such as a pond or stream, you can place water near the feeder. In the winter, you have to replace the water often because it freezes easily.

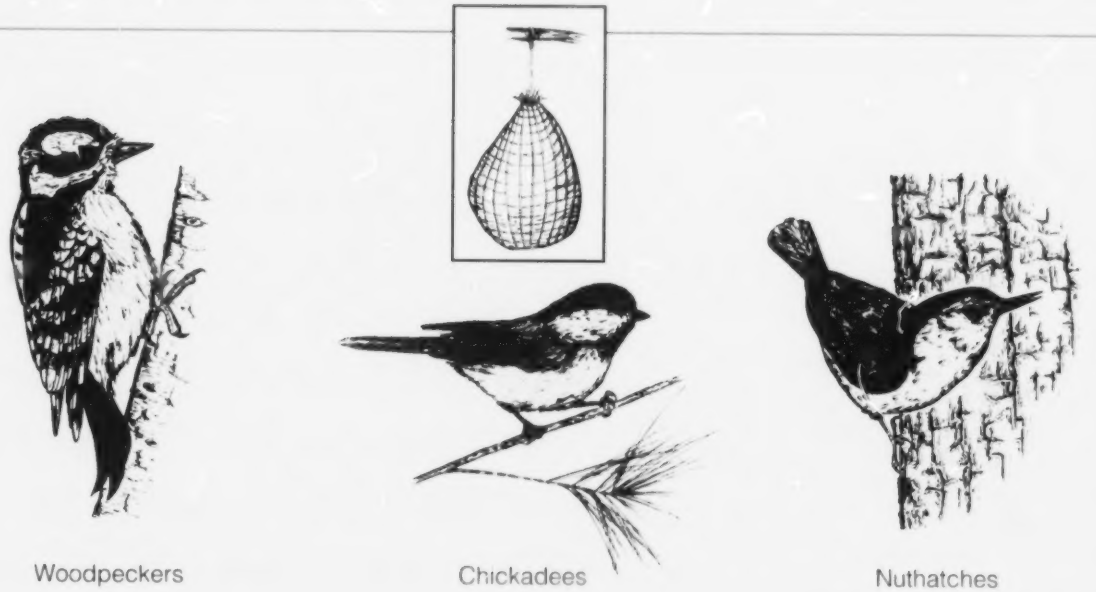
What Birds Eat

The following illustrations show what birds you are likely to attract with each type of food.

Sunflower seeds



Suet

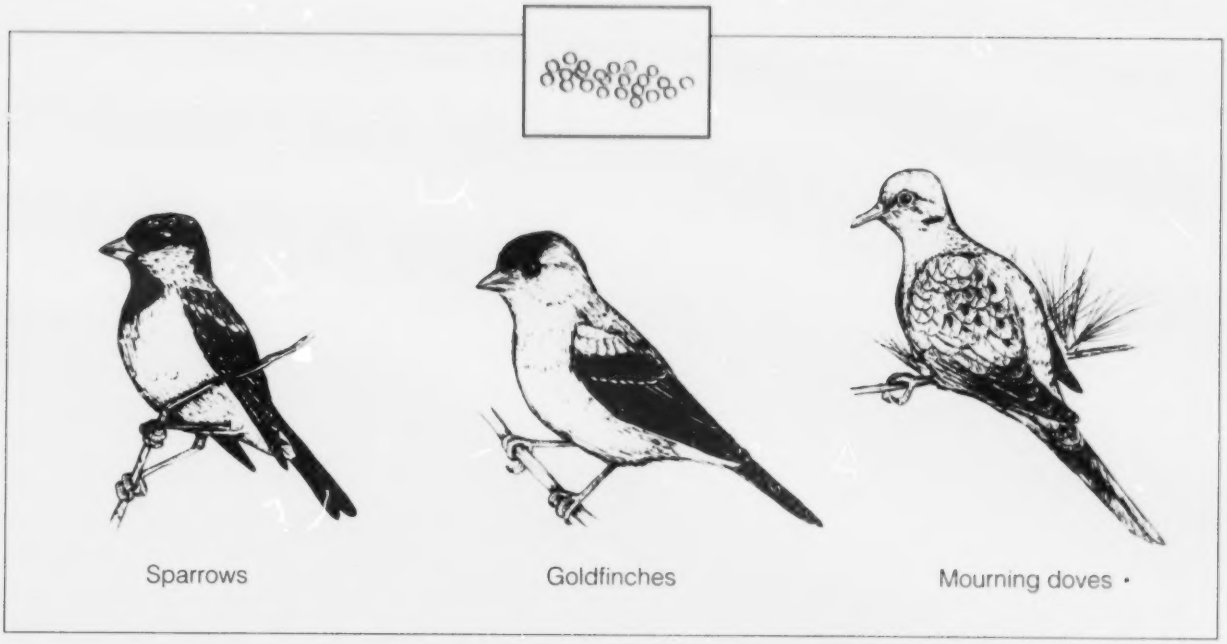


Woodpeckers

Chickadees

Nuthatches

Millet



Sparrows

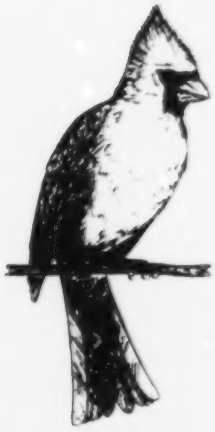
Goldfinches

Mourning doves

Fruit and Berries

Blue jays

Cedar waxwings



Cardinals

Activity 1. Cooking for Birds

The following recipes are for foods that birds like to eat.

Seed Cakes

(Have an adult help you with the cooking.)

Ingredients:

- suet (or peanut butter)
- seed mixture (either mixed yourself or store-bought)

Grind or chop up suet, then melt it in a pan over LOW heat. Pour the seed mixture into a muffin pan so that each mold is 3/4 full of seed. Pour the melted suet over the seed mixture, stir the suet and seeds, and let cool. When the seed cakes are cool, place them in a suet feeder, windowsill feeder, or on a feeding table. Keep extra cakes in a sealed bag or container in the refrigerator.

Birdseed Mixture

(for seed eaters)

Ingredients:

- 5 pounds sunflower seeds (black oilseed sunflower seeds provide the most energy)
- 25 pounds coarse chicken scratch feed

Mix together and feed, using a covered bird feeder. If the mixture gets wet, it will cake and become moldy, which can make birds sick. Store any extra seed mixture in a sealed, animal-proof container.

Bird Food Necklace

Ingredients:

- suet
- apple slices
- cranberries
- raisins
- dates
- stale bread

Using a needle and long thread, string the food together. Hang these "necklaces" in your trees or shrubs for the birds to enjoy.

Activity 2. Bird Feeders

You can feed birds in many types of feeders. Here are a few suggestions:

- Use at least two different feeders to attract a variety of birds. (Examples are suet feeder, seed feeder, or nectar feeder.)
- Be sure all the food in the feeders is fresh. Moldy or rotten food can make birds sick.
- Place bird feeders where the birds are safe from cats and other animals. More birds will visit your feeder if they feel safe.
- If you want birds to come continuously to your feeder in the winter, do not let the food supply run out.
- Birds may take a few weeks to find your feeder when you first put it out. Continue to keep fresh food and water out for the birds and soon they will come to your feeder.
- You can make simple bird feeders using materials and objects from around the house.

The following pages show bird feeders you can make. Make one or more of these feeders, or use your imagination and design your own. Your leader has plans for making other feeders for this project. Ask for copies if you are interested.

Simple Pine Cone Feeder

What You Will Need

- Large, open, dry evergreen cone
- String or wire
- Peanut butter
- Knife or other spreading utensil
- Small seeds or oatmeal
- Bowl

How to Make It

1. Tie string or wire onto base of cone.
2. Use knife to spread peanut butter on cone, partially filling it.
3. Roll cone in seeds, or oatmeal, in bowl. Seeds will stick to peanut butter and cover cone.
4. Hang in tree.

How to Use It

If cone is not large enough to support a perched bird, it should be hung where a bird can reach it using other support.

Refill the cone with peanut butter and seeds as birds eat them.

Log Suet Feeder

What You Will Need

- Dead tree limb, 2" to 4" in diameter and about 18" long. (A soft wood such as pine will be easier to work with than a hard wood such as maple. Be sure the pine limb is dry; otherwise the sticky resin, or sap, will be messy.)
- Small hand saw
- Hand drill
- Drill bit, 3/4" or 1"
- Screw eye
- Suet or peanut butter
- Knife or spreader
- Wire or string

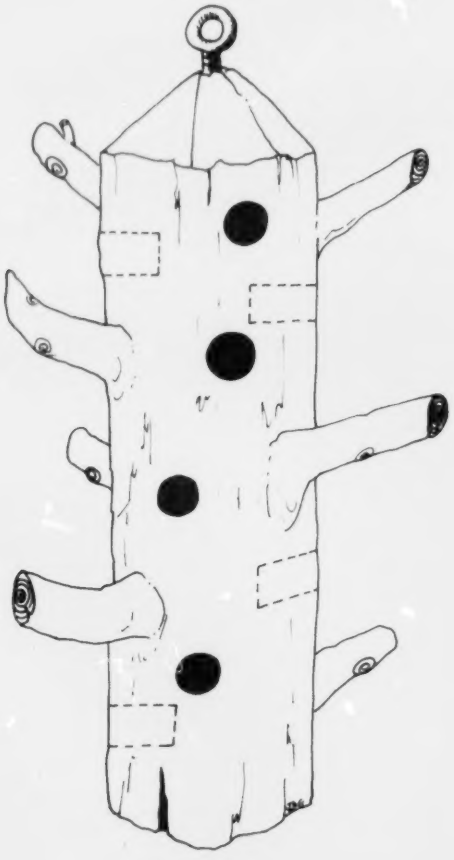
How to Make It

1. Cut off the side branches of the tree limb, leaving about 2" of each branch.
2. Drill holes 3/4" deep all over the log with hand drill.
3. Screw in the screw eye at the top of the log.
4. Spread and fill the holes with suet or peanut butter.
5. Loop and tie wire or string through the screw eye.
6. Attach the feeder to a branch.

How to Use It

Hang the feeder on a tree branch high enough that dogs or other animals cannot pull it down but low enough that it is easy to refill.

Refill the feeder when the suet or peanut butter is eaten.



18

Simple Jug Feeder

What You Will Need

- Empty plastic jug (such as a one-gallon milk jug with cap)
- Marking pen or pencil
- Scissors
- Strong string or thin wire
- Glue
- Heavy, flat rock
- Bird seed, bread crumbs, or crackers

How to Make It

1. Rinse the jug.
2. Draw an outline of the door as shown in the diagram.
3. Cut out the door.
4. Carefully make two small holes with the point of the scissors at the top of the jug just below the cap. Thread the string or wire through the holes in the jug. Glue cap in place.
5. Find a large, heavy, flat rock to add weight to your feeder. Clean the bottom of the rock. Glue the rock to the inside of your feeder. (The weight will help reduce swaying of the feeder in the wind.)
6. Fill the feeder with bird seed, bread crumbs, or crackers.

How to Use It

Hang feeder in a high place. Refill when empty.

Suet Feeder

What You Will Need

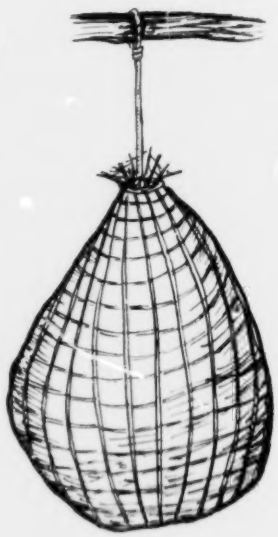
- Mesh bag, used to package oranges or onions
- Suet
- Thin wire

How to Make It

1. Fill the mesh bag with suet.
2. Tie a knot at the top of the bag.
3. Loop and tie the wire to the bag.

How to Use It

Hang the bag by the wire loop from a tree. Make sure the bag is high off the ground so animals such as dogs cannot jump up and get it.



Identifying Birds

After you have placed some feeders outdoors, spend time watching the birds that visit the feeders. By looking carefully you will notice that birds look and act differently from one another. Just as people come in different shapes and sizes and vary in the color of their eyes, skin, and hair, birds come in many shapes and sizes too. Some birds are brightly colored while others are dull. Birds fly and walk differently, and each bird has favorite foods.

Based on their differences, birds are grouped into families. Birds that are similar are in the same family. Each bird also has a common name, such as robin, cardinal, or pigeon. To find out the family, common name, and other information about a bird, ask the following questions:

Where Did You See the Bird?

Birds most often are found where their favorite food is available. It is unlikely to see a robin, which likes to eat worms, swimming in a lake. You probably would not see a duck pulling a worm in your garden either. You are most likely to see a duck on a lake and a robin in a garden.

What Size Is the Bird?

Is it small like a sparrow, midsize like a robin, or bigger than a pigeon? Knowing the size of a bird can help you figure out what it is.

What Is the Shape of the Bird?

Is it short and plump or long? Does it have a long or short tail? Does it have a short or long bill? The overall shape of a bird is often a good clue for identification.

How Does the Bird Behave?

Does it hop or walk? Does it climb trees? Does it wade or swim? Watch how the bird acts to get clues about what bird it might be.

What Color Is the Bird?

Brightly colored birds are usually easy to identify. Often the males of a certain bird are brightly colored while the female's coloring is dull so she blends in with the natural surroundings. The female's coloring often protects her and the nest from being seen by enemies.

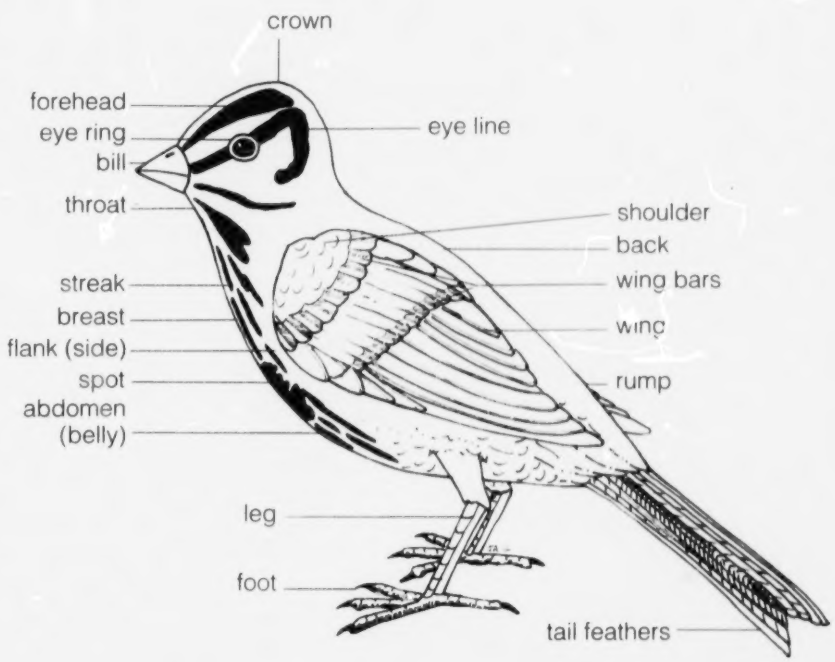
What Markings Are on the Bird?

In addition to color, size, and shape, markings such as eye stripes, wing bars, white patches, and color patterns can help you correctly identify a bird. The markings on a particular bird are called its *field marks*.

All of this information can help you when using an identification key or *field guide* to find the name of a bird. Field guides are books that have pictures and information about birds. Birds are generally grouped by family in a guide. Information about color, field marks, behavior, and range (where the bird is usually found) are included in most field guides. . Several field guides are available; talk to your leader or parents about getting a field guide to help you identify birds.

Key Parts and Field Marks of a Bird

The picture below shows you common parts and markings of a bird. Knowing these names will help you understand a field guide and look for field marks.



Activity 3. A Field Record of Birds

A good way to keep track of all the birds you see is by keeping a *field record.* A field record can be completed for each bird you see at your feeder, in your yard, on walks, and on trips. An example of a completed field record of a male cardinal is included below.

Field Record

Common name: NORTHERN CARDINAL

Family: GROSBEAKS, FINCHES, SPARROWS, BUNTINGS Sex: ☑ Male ❑ Female

Date: DEC. 10 Location: AT HOME

Where sighted (check one): ❑ Woods ❑ Lake ☑ Garden

❑ Stream ❑ Field ❑ Ocean ❑ Park ❑ Cliff or building

❑ Other

Size: ❑ House sparrow ☑ Robin ❑ Pigeon or larger

Field marks: RED BODY WITH POINTED CREST ON HEAD, BLACK AROUND BILL.

Behavior: FIRST BIRD AT FEEDER IN THE MORNING, LAST BIRD AT FEEDER IN THE EVENING.

Fill out a field record for each different bird you see. If you are not sure what bird you saw, fill out a record anyway. Write *unknown* next to the common name and fill out the rest of the record. Be sure to make careful notes of field markings. Later, you or your leader may be able to identify the bird from your record using a field guide. Remember that males and females of the same bird often look very different. Place a copy of the field record and a field guide where you watch your feeder. Record the different birds and the new birds you see each day for a week. Be sure to watch for birds at different times of the day. Have your leader make copies of the field record as you need more.

You may want to start a "Lifetime List" of birds you see. Write in a notebook the name of the bird and the date and place you observed it; you can add to this list for the rest of your life.

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Field Record

Common name: _____

Family: _____ Sex: ❑ Male ❑ Female

Date: _____ Location: _____

Where sighted (check one): ❑ Woods ❑ Lake ❑ Garden

❑ Stream ❑ Field ❑ Ocean ❑ Park ❑ Cliff or building

❑ Other _____

Size: ❑ House sparrow ❑ Robin ❑ Pigeon or larger

Field marks:

Behavior:

Field Record

Common name: _____

Family: _____ Sex: ❑ Male ❑ Female

Date: _____ Location: _____

Where sighted (check one): ❑ Woods ❑ Lake ❑ Garden

❑ Stream ❑ Field ❑ Ocean ❑ Park ❑ Cliff or building

❑ Other _____

Size: ❑ House sparrow ❑ Robin ❑ Pigeon or larger

Field marks:

Behavior:

Activity 4. Project Story

On a separate sheet of paper write a short story about your Birds in Your Backyard project. Describe what activities you did, the feeders you made, the birds you saw, and what you learned by doing the project. Attach completed copies of the field records to your story.

Other Projects

If you have enjoyed this project and want to study birds further, try one of the 4-H projects listed below. They are available from your Cooperative Extension 4-H office.

Bird Study: An Introduction to Ornithology for Youth (L-5-8)

This project focuses on bird behavior. Activities are related to territorial behavior, predator mobbing, and nesting behavior.

Understanding Birds of Prey (L-5-9)

An advanced project dealing with birds of prey. Activities include owl pellet analysis, migration counts, and hawk observation.

Field Record

Common name: _____

Family: _____ Sex: ❑ Male ❑ Female

Date: _____ Location: _____

Where sighted (check one): ❑ Woods ❑ Lake ❑ Garden

❑ Stream ❑ Field ❑ Ocean ❑ Park ❑ Cliff or building

❑ Other _____

Size: ❑ House sparrow ❑ Robin ❑ Pigeon or larger

Field marks:

Behavior:

Field Record

Common name: _____

Family: _____ Sex: ❑ Male ❑ Female

Date: _____ Location: _____

Where sighted (check one): ❑ Woods ❑ Lake ❑ Garden

❑ Stream ❑ Field ❑ Ocean ❑ Park ❑ Cliff or building

❑ Other _____

Size: ❑ House sparrow ❑ Robin ❑ Pigeon or larger

Field marks:

Behavior:

9/88 30M MS E8802050801

Field Record

Common name: _____

Family: _____ Sex: ❑ Male ❑ Female

Date: _____ Location: _____

Where sighted (check one): ❑ Woods ❑ Lake ❑ Garden

❑ Stream ❑ Field ❑ Ocean ❑ Park ❑ Cliff or building

❑ Other _____

Size: ❑ House sparrow ❑ Robin ❑ Pigeon or larger

Field marks:

Behavior:

Field Record

Common name: _____

Family: _____ Sex: ❑ Male ❑ Female

Date: _____ Location: _____

Where sighted (check one): ❑ Woods ❑ Lake ❑ Garden

❑ Stream ❑ Field ❑ Ocean ❑ Park ❑ Cliff or building

❑ Other _____

Size: ❑ House sparrow ❑ Robin ❑ Pigeon or larger

Field marks:

Behavior:

New York State Bird Checklist

Prepared by Paul DeBenedictis, Syracuse University, 1987

Use a check-mark in the space at the left of a bird's name to indicate that it has been seen.

- ❑ Red-throated Loon
- ❑ Arctic Loon
- ❑ Common Loon
- ❑ Yellow-billed Loon
- ❑ Pied-billed Grebe
- ❑ Horned Grebe
- ❑ Eared Grebe
- ❑ Red-necked Grebe
- ❑ Western Grebe
- ❑ Yellow-nosed Albatross
- ❑ Northern Fulmar
- ❑ Black-capped Petrel
- ❑ Mottled Petrel
- ❑ Herald Petrel
- ❑ Cory's Shearwater
- ❑ Greater Shearwater
- ❑ Sooty Shearwater
- ❑ Manx Shearwater
- ❑ Audubon's Shearwater
- ❑ Wilson's Storm-Petrel
- ❑ White-faced Storm-Petrel
- ❑ Leach's Storm-Petrel
- ❑ White-tailed Tropicbird
- ❑ Red-billed Tropicbird
- ❑ Brown Booby
- ❑ Northern Gannet
- ❑ American White Pelican
- ❑ Brown Pelican
- ❑ Great Cormorant
- ❑ Double-crested Cormorant
- ❑ Magnificent Frigatebird
- ❑ American Bittern
- ❑ Least Bittern
- ❑ Great Blue Heron
- ❑ Great Egret
- ❑ Snowy Egret
- ❑ Little Blue Heron
- ❑ Tricolored Heron
- ❑ Cattle Egret
- ❑ Green-backed Heron
- ❑ Black-crowned Night-Heron
- ❑ Yellow-crowned Night-Heron
- ❑ White Ibis
- ❑ Glossy Ibis
- ❑ White-faced Ibis
- ❑ Wood Stork
- ❑ Fulvous Whistling-Duck
- ❑ Tundra Swan
- ❑ Mute Swan
- ❑ Greater White-fronted Goose
- ❑ Snow Goose
- ❑ Ross' Goose
- ❑ Brant
- ❑ Barnacle Goose
- ❑ Canada Goose
- ❑ Wood Duck
- ❑ Green-winged Teal
- ❑ American Black Duck
- ❑ Mallard
- ❑ Northern Pintail
- ❑ Blue-winged Teal
- ❑ Cinnamon Teal
- ❑ Northern Shoveler
- ❑ Gadwall
- ❑ Eurasian Wigeon
- ❑ American Wigeon
- ❑ Canvasback
- ❑ Redhead
- ❑ Ring-necked Duck
- ❑ Tufted Duck
- ❑ Greater Scaup
- ❑ Lesser Scaup
- ❑ Common Eider
- ❑ King Eider
- ❑ Labrador Duck
- ❑ Harlequin Duck
- ❑ Oldsquaw
- ❑ Black Scoter
- ❑ Surf Scoter
- ❑ White-winged Scoter
- ❑ Common Goldeneye
- ❑ Barrow's Goldeneye
- ❑ Bufflehead
- ❑ Smew
- ❑ Hooded Merganser
- ❑ Common Merganser
- ❑ Red-breasted Merganser

- ❑ Ruddy Duck
- ❑ Black Vulture
- ❑ Turkey Vulture
- ❑ Osprey
- ❑ Am. Swallow-tailed Kite
- ❑ Black-shouldered Kite
- ❑ Mississippi Kite
- ❑ Bald Eagle
- ❑ Northern Harrier
- ❑ Sharp-shinned Hawk
- ❑ Cooper's Hawk
- ❑ Northern Goshawk
- ❑ Red-shouldered Hawk
- ❑ Broad-winged Hawk
- ❑ Swainson's Hawk
- ❑ Red-tailed Hawk
- ❑ Rough-legged Hawk
- ❑ Golden Eagle
- ❑ American Kestrel
- ❑ Merlin
- ❑ Peregrine Falcon
- ❑ Gryfalcon
- ❑ Gray Partridge
- ❑ Ring-necked Pheasant
- ❑ Spruce Grouse
- ❑ Ruffed Grouse
- ❑ Greater Prairie Chicken
- ❑ Wild Turkey
- ❑ Northern Bobwhite
- ❑ Yellow Rail
- ❑ Black Rail
- ❑ Corn Crake
- ❑ Clapper Rail
- ❑ King Rail
- ❑ Virginia Rail
- ❑ Sora
- ❑ Purple Gallinule
- ❑ Common Moorhen
- ❑ American Coot
- ❑ Sandhill Crane
- ❑ Northern Lapwing
- ❑ Black-bellied Plover
- ❑ Lesser Golden Plover
- ❑ Wilson's Plover
- ❑ Semipalmated Plover
- ❑ Piping Plover
- ❑ Killdeer
- ❑ American Oystercatcher
- ❑ Black-necked Stilt
- ❑ American Avocet
- ❑ Greater Yellowlegs
- ❑ Lesser Yellowlegs
- ❑ Wood Sandpiper
- ❑ Solitary Sandpiper
- ❑ Willet
- ❑ Spotted Sandpiper
- ❑ Upland Sandpiper
- ❑ Eskimo Curlew
- ❑ Whimbrel
- ❑ Eurasian Curlew
- ❑ Long-billed Curlew
- ❑ Hudsonian Godwit
- ❑ Bar-tailed Godwit
- ❑ Marbled Godwit
- ❑ Ruddy Turnstone
- ❑ Red Knot
- ❑ Sanderling
- ❑ Semipalmated Sandpiper
- ❑ Western Sandpiper
- ❑ Little Stint
- ❑ Least Sandpiper
- ❑ White-rumped Sandpiper
- ❑ Baird's Sandpiper
- ❑ Pectoral Sandpiper
- ❑ Sharp-tailed Sandpiper
- ❑ Purple Sandpiper
- ❑ Dunlin
- ❑ Curlew Sandpiper
- ❑ Stilt Sandpiper
- ❑ Buff-breasted Sandpiper
- ❑ Ruff
- ❑ Short-billed Dowitcher
- ❑ Long-billed Dowitcher
- ❑ Common Snipe
- ❑ American Woodcock
- ❑ Wilson's Phalarope
- ❑ Red-necked Phalarope
- ❑ Red Phalarope
- ❑ Pomarine Jaeger
- ❑ Parasitic Jaeger
- ❑ Long-tailed Jaeger
- ❑ Great Skua
- ❑ South Polar Skua
- ❑ Laughing Gull
- ❑ Franklin's Gull
- ❑ Little Gull
- ❑ Common Black-headed Gull
- ❑ Bonaparte's Gull
- ❑ Ring-billed Gull
- ❑ California Gull
- ❑ Herring Gull
- ❑ Thayer's Gull

- ❑ Iceland Gull
- ❑ Lesser Black-backed Gull
- ❑ Glaucous Gull
- ❑ Great Black-backed Gull
- ❑ Black-legged Kittiwake
- ❑ Sabine's Gull
- ❑ Ivory Gull
- ❑ Gull-billed Tern
- ❑ Caspian Tern
- ❑ Royal Tern
- ❑ Sandwich Tern
- ❑ Roseate Tern
- ❑ Common Tern
- ❑ Arctic Tern
- ❑ Forster's Tern
- ❑ Least Tern
- ❑ Bridled Tern
- ❑ Sooty Tern
- ❑ Black Tern
- ❑ Black Skimmer
- ❑ Dovekie
- ❑ Common Murre
- ❑ Thick-billed Murre
- ❑ Razorbill
- ❑ Black Guillemot
- ❑ Atlantic Puffin
- ❑ Rock Dove
- ❑ White-winged Dove
- ❑ Mourning Dove
- ❑ Passenger Pigeon
- ❑ Black-billed Cuckoo
- ❑ Yellow-billed Cuckoo
- ❑ Common Barn-Owl
- ❑ Eastern Screech-Owl
- ❑ Great Horned Owl
- ❑ Snowy Owl
- ❑ Northern Hawk-Owl
- ❑ Burrowing Owl
- ❑ Barred Owl
- ❑ Great Gray Owl
- ❑ Long-eared Owl
- ❑ Short-eared Owl
- ❑ Boreal Owl
- ❑ Northern Saw-whet Owl
- ❑ Common Nighthawk
- ❑ Chuck-will's-widow
- ❑ Whip-poor-will
- ❑ Chimney Swift
- ❑ Ruby-throated Hummingbird
- ❑ Belted Kingfisher
- ❑ Red-headed Woodpecker
- ❑ Red-bellied Woodpecker
- ❑ Yellow-bellied Sapsucker
- ❑ Downy Woodpecker
- ❑ Hairy Woodpecker
- ❑ Three-toed Woodpecker
- ❑ Black-backed Woodpecker
- ❑ Northern Flicker
- ❑ Pileated Woodpecker
- ❑ Olive-sided Flycatcher
- ❑ Eastern Wood-Pewee
- ❑ Yellow-bellied Flycatcher
- ❑ Acadian Flycatcher
- ❑ Alder Flycatcher
- ❑ Willow Flycatcher
- ❑ Least Flycatcher
- ❑ Eastern Phoebe
- ❑ Say's Phoebe
- ❑ Ash-throated Flycatcher
- ❑ Great Crested Flycatcher
- ❑ Western Kingbird
- ❑ Eastern Kingbird
- ❑ Gray Kingbird
- ❑ Scissor-tailed Flycatcher
- ❑ Common Skylark
- ❑ Horned Lark
- ❑ Purple Martin
- ❑ Tree Swallow
- ❑ N. Rough-winged Swallow
- ❑ Bank Swallow
- ❑ Cliff Swallow
- ❑ Barn Swallow
- ❑ Gray Jay
- ❑ Blue Jay
- ❑ Black-billed Magpie
- ❑ American Crow
- ❑ Fish Crow
- ❑ Common Raven
- ❑ Black-capped Chickadee
- ❑ Boreal Chickadee
- ❑ Tufted Titmouse
- ❑ Brown-headed Nuthatch
- ❑ Red-breasted Nuthatch
- ❑ White-breasted Nuthatch
- ❑ Brown Creeper
- ❑ House Wren
- ❑ Winter Wren
- ❑ Bewick's Wren
- ❑ Carolina Wren
- ❑ Sedge Wren
- ❑ Marsh Wren
- ❑ Golden-crowned Kinglet

- ❑ Ruby-crowned Kinglet
- ❑ Blue-gray Gnatcatcher
- ❑ Northern Wheatear
- ❑ Eastern Bluebird
- ❑ Mountain Bluebird
- ❑ Townsend's Solitaire
- ❑ Veery
- ❑ Gray-cheeked Thrush
- ❑ Swainson's Thrush
- ❑ Hermit Thrush
- ❑ Wood Thrush
- ❑ Fieldfare
- ❑ Redwing
- ❑ American Robin
- ❑ Varied Thrush
- ❑ Gray Catbird
- ❑ Northern Mockingbird
- ❑ Sage Thrasher
- ❑ Brown Thrasher
- ❑ Water Pipit
- ❑ Bohemian Waxwing
- ❑ Cedar Waxwing
- ❑ Northern Shrike
- ❑ Loggerhead Shrike
- ❑ European Starling
- ❑ White-eyed Vireo
- ❑ Bell's Vireo
- ❑ Solitary Vireo
- ❑ Yellow-throated Vireo
- ❑ Warbling Vireo
- ❑ Philadelphia Vireo
- ❑ Red-eyed Vireo
- ❑ Blue-winged Warbler
- ❑ Golden-winged Warbler
- ❑ Tennessee Warbler
- ❑ Orange-crowned Warbler
- ❑ Nashville Warbler
- ❑ Northern Parula
- ❑ Yellow Warbler
- ❑ Chestnut-sided Warbler
- ❑ Magnolia Warbler
- ❑ Cape May Warbler
- ❑ Black-throated Blue Warbler
- ❑ Yellow-rumped Warbler
- ❑ Black-throated Green Warbler
- ❑ Townsend's Warbler
- ❑ Black-throated Gray Warbler
- ❑ Blackburnian Warbler
- ❑ Yellow-throated Warbler
- ❑ Pine Warbler
- ❑ Prairie Warbler
- ❑ Palm Warbler
- ❑ Bay-breasted Warbler
- ❑ Blackpoll Warbler
- ❑ Cerulean Warbler
- ❑ Black-and-white Warbler
- ❑ American Redstart
- ❑ Prothonotary Warbler
- ❑ Worm-eating Warbler
- ❑ Swainson's Warbler
- ❑ Ovenbird
- ❑ Northern Waterthrush
- ❑ Louisiana Waterthrush
- ❑ Kentucky Warbler
- ❑ Mourning Warbler
- ❑ Connecticut Warbler
- ❑ Common Yellowthroat
- ❑ Hooded Warbler
- ❑ Wilson's Warbler
- ❑ Canada Warbler
- ❑ Painted Redstart
- ❑ Yellow-breasted Chat
- ❑ Summer Tanager
- ❑ Scarlet Tanager
- ❑ Western Tanager
- ❑ Northern Cardinal
- ❑ Rose-breasted Grosbeak
- ❑ Black-headed Grosbeak
- ❑ Blue Grosbeak
- ❑ Indigo Bunting
- ❑ Painted Bunting
- ❑ Dickcissel
- ❑ Green-tailed Towhee
- ❑ Rufous-sided Towhee
- ❑ Bachman's Sparrow
- ❑ American Tree Sparrow
- ❑ Chipping Sparrow
- ❑ Clay-colored Sparrow
- ❑ Field Sparrow
- ❑ Vesper Sparrow
- ❑ Lark Sparrow
- ❑ Lark Bunting
- ❑ Savannah Sparrow
- ❑ Baird's Sparrow
- ❑ Grasshopper Sparrow
- ❑ Henslow's Sparrow
- ❑ LeConte's Sparrow
- ❑ Sharp-tailed Sparrow
- ❑ Seaside Sparrow
- ❑ Fox Sparrow
- ❑ Song Sparrow
- ❑ Lincoln's Sparrow

- ❑ Swamp Sparrow
- ❑ White-throated Sparrow
- ❑ Golden-crowned Sparrow
- ❑ White-crowned Sparrow
- ❑ Harris' Sparrow
- ❑ Dark-eyed Junco
- ❑ Lapland Longspur
- ❑ Smith's Longspur
- ❑ Chestnut-collared Longspur
- ❑ Snow Bunting
- ❑ Bobolink
- ❑ Red-winged Blackbird
- ❑ Eastern Meadowlark
- ❑ Western Meadowlark
- ❑ Yellow-headed Blackbird
- ❑ Rusty Blackbird
- ❑ Brewer's Blackbird
- ❑ Boat-tailed Grackle
- ❑ Common Grackle
- ❑ Brown-headed Cowbird
- ❑ Orchard Oriole
- ❑ Northern Oriole
- ❑ Brambling
- ❑ Pine Grosbeak
- ❑ Purple Finch
- ❑ House Finch
- ❑ Red Crossbill
- ❑ White-winged Crossbill
- ❑ Common Redpoll
- ❑ Hoary Redpoll
- ❑ Pine Siskin
- ❑ American Goldfinch
- ❑ European Goldfinch
- ❑ Evening Grosbeak
- ❑ House Sparrow

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9/88 3M MS E8802050801

Woodworking

Bird Feeder

Materials Needed:

1 piece softwood board, 1" x 10" x 48"

3 No. 8 flat head wood screws, 1½"

1 quart-size glass jar

2 blocks of plywood or softwood, ½" x 1" x 3"

12 1" box nails

1 strip of tin can or galvanized iron, 1" x 12"

2 No. 8 round head wood screws, ¾"

1 piece wood lattice, ¼" x 1½" x 30"

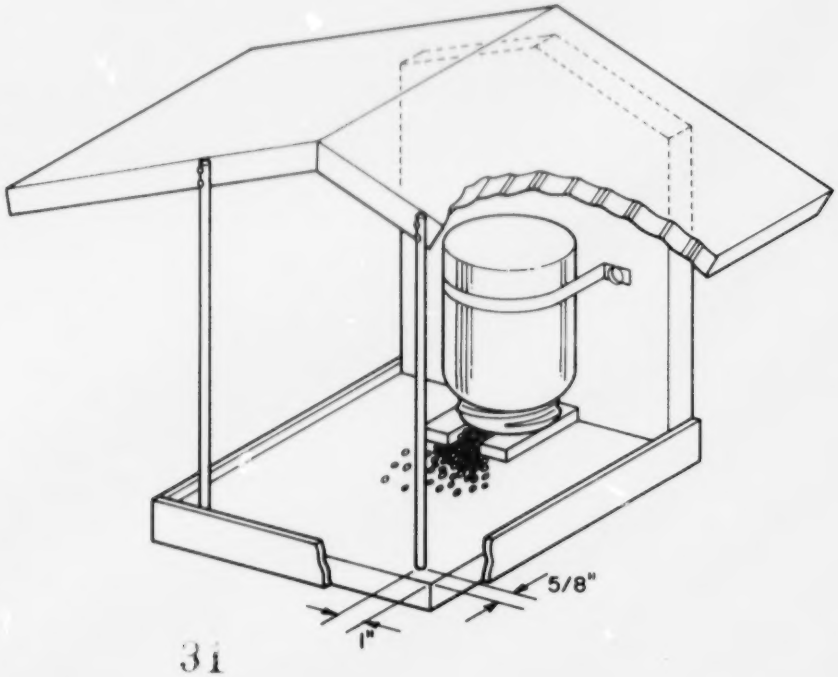
6 finishing nails, 8d

waterproof glue

2 corrugated fasteners, ½" x 1"

30" of ⅜" dowelling, sawed into two 15" pieces

exterior paint or wood preservative



How to Make the Feeder:

1. Measure 12" along one edge of the 1" x 10" x 48" board. Square across the board at the 12-inch mark and saw off the piece. This 12" x 10" piece is one side of the roof.

2. Measure and saw another piece as in step 1 for the other roof piece.

3. Measure and mark a 10" piece along the edge of the board for the floor of the feeder. Square and saw off this piece.

4. The remaining piece (14" x 10") is the back of the feeder. From one end, measure and mark points 2" along each 14-inch edge. From the center of the same end, draw a line across the board to each point. Saw along the lines. This forms an angle to which the roof pieces will fit.

5. The 10-inch edges of the roof pieces must fit together at an angle to form the joint at the peak of the roof. To do this, set a T-bevel at the angle of the roof shown in the illustration or trace and cut out the pattern and draw the angle along one edge at one end of each roof piece. Saw along these lines. This cuts an angle on each roof piece so that the edges will fit together.

6. Place one edge of the floor against the bottom of the back piece. Fasten with three No. 8, 1½" flat head wood screws through the back and into the floor piece. Drill pilot holes to prevent splitting and to make the screws turn more easily.

7. Place the glass jar so its mouth is on the feeder floor and its side is against the center of the back. Set two ½" x 1" x 3" blocks of plywood, or other softwood, under opposite sides of the jar mouth, as illustrated. This leaves an opening ½" high and about 1½" wide between the mouth of the jar and the floor. Birdseed will flow from the jar through this opening onto the floor of the feeder. Remove the jar, mark the location of the blocks with a pencil, and turn the feeder over. Fasten each block to the floor of the feeder with two 1" box nails.

8. Set the glass jar in place as in step 7. Bend a 1-inch strip of tin or other pliable material around the jar near the top. Shape each end of the strip so a screw can be put through the strip into the back of the feeder, as illustrated. Use a No. 8, ¾" round head wood screw to fasten each end of this strip. After putting the screws in place, take out one screw and remove the jar.

9. Measure along the edge at one side of the feeder floor from the back to the front corner. Mark this distance on a strip of ¼" x 1½" lattice and saw off the piece. Fasten this piece in place with its lower edge even with the bottom of the feeder floor. Use three 1" box nails.

10. Repeat step 9 on the other edge of the floor.

11. Measure across the front end of the floor. Mark this distance and cut another piece of lattice to fit. Fasten it in place with 1" box nails. These pieces form a raised edge to keep bird food on the feeder.

12. Hold the roof pieces in place. When they fit properly, fasten one piece with 8d finishing nails and waterproof glue. Use a nail set on the nails. Fasten the other roof piece in place. Use the corrugated fasteners at the joint in the front and back to strengthen the roof joint.

13. Although roof supports in the front are optional, the two ⅜" dowels will add stability to the roof. Refer to the illustration for dowel locations. Recess dowels ½" into the feeder floor. Drill nail holes through the top of the dowels and nail the roof pieces to them.

14. Using a ¼" bit, drill a hole through the center of the back above the top of the glass jar. This hole can be used with a large screw to fasten the feeder to a tree, post, or other location. If the feeder will be set on a horizontal surface, the hole is unnecessary.

15. Paint the feeder with two coats of exterior paint or a wood preservative.

16. Fasten the feeder to a tree, post, or other location.

17. Remove the feeder jar to fill it with birdseed.

Cornell Cooperative Extension provides equal program and employment opportunities.
Revised 9/88 3M MS E8802050801

4-H Bird Feeder Plan

Design by Roger L. VanNostrand, Cooperative Extension agent, Chautauqua County

Parts

(use 1" lumber; approximately 4 feet of 1" x 10" lumber is required)

1 back (9 1/4" x 17")

1 top (9 1/4" x 15")

1 bottom (9 1/4" x 6")

1 wedge (9 1/4" x 4")

2 sides (11 1/4" x 8 3/4" x 9 3/4" x 5")

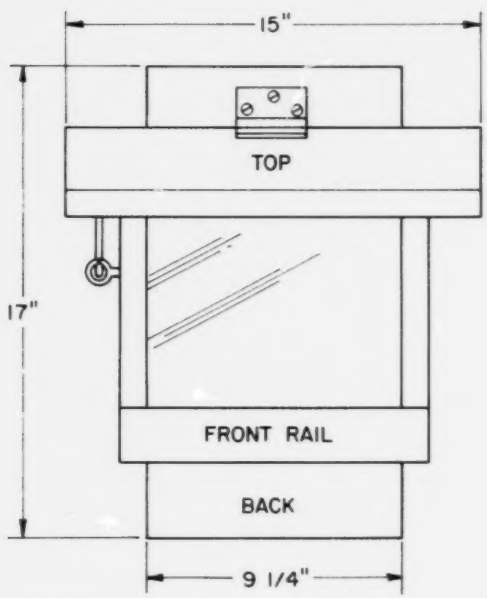
1 front rail (10 3/4" x 2")

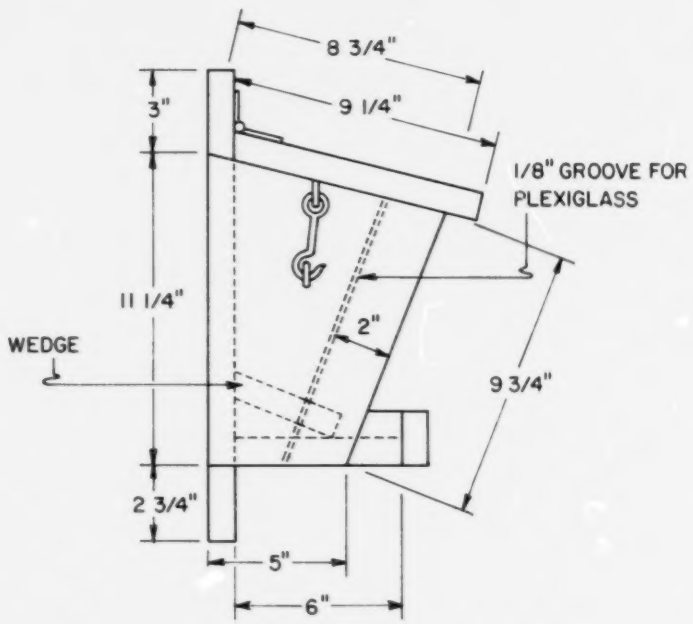
2 side rails (2" x 2", cut to fit)

1 hinge (2 1/2")

1 hook and screw eyelet

1 plexiglass front panel (9" x 9 1/2")





Assembly Instructions

1. Precut and sand all pieces. (*Optional*: Stain or paint parts before assembly)

2. Cut 1/8" wide groove 1/8" deep on insides of feeder side pieces. This will be parallel to and 2" from front edge.

3. Using 1 1/2" common box or galvanized nails, begin assembly by nailing bottom through back at right angles. All parts may be glued with an exterior-grade carpenter's glue for added strength and a weather-tight seal.

4. Nail sides to back and bottom and attach wedge by glueing and nailing to back and bottom. The wedge should be angled so that bird feed will spill out onto the feeder tray.

5. Slide plexiglass through grooves and insert (wooden) plugs to hold plexiglass approximately 3/8" to 1/2" above bottom. (*Note*: Leftover wood scraps, screws, or small nails can be used as plugs to elevate the plexiglass above the bottom of the feeder. Adjust the plexiglass opening according to the coarseness of the bird feed used; the opening should be large enough to allow a free flow of the seed to the feeder tray.)

6. Glue and nail side and front rails to finish feeder tray.

7. Place top on feeder with hinge in place and mark screw holes for hinge plates. (*Optional*: Paint hinge with rust-inhibiting paint before final assembly.)

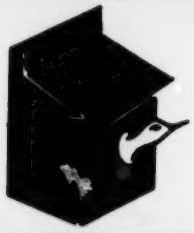
8. Attach screw hook and eyelet to secure the top. (*Note*: Avoid placing eyelet where groove for plexiglass is located.)

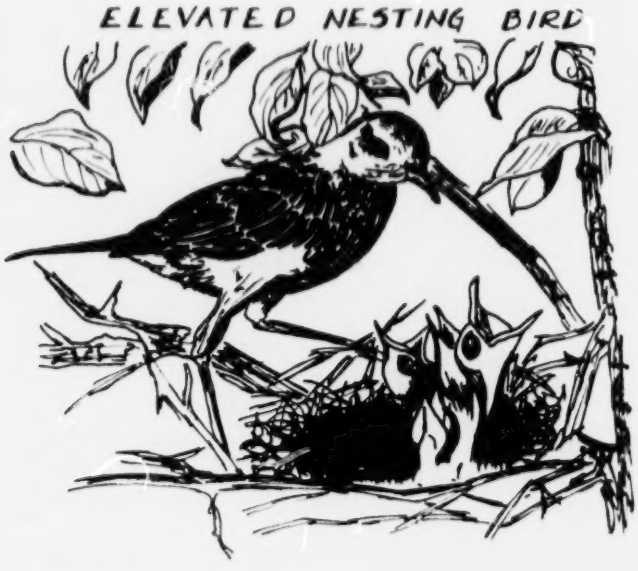
9. If finish has not been applied before assembly, paint or stain the feeder.

10. Attach feeder securely to post or tree. Feeder will hold up to five pounds of mixed bird seed.

WILDLIFE PROJECT

Birdhouses
and Bird Furniture





INTRODUCTION

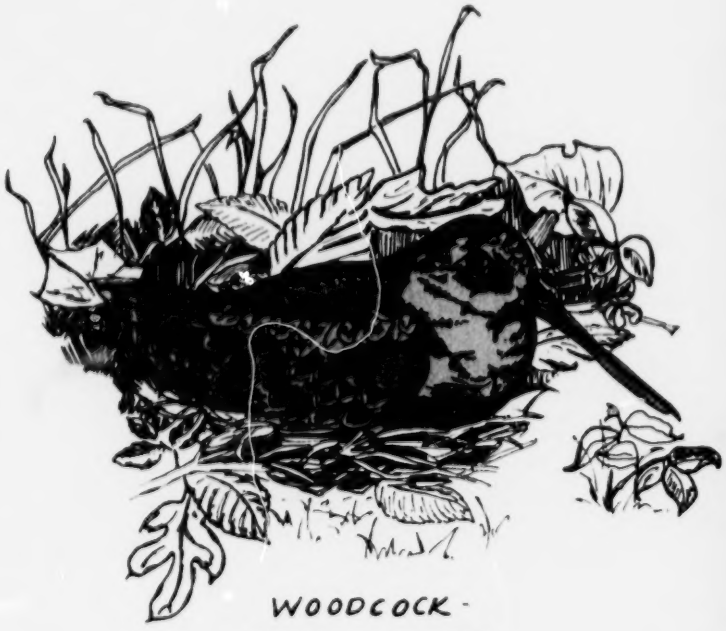
Birdhouses and bird feeders can be used to improve nesting and feeding conditions for birds. In this activity guide you will learn how to construct, place and erect bird furniture so birds will use them.

BIRDHOUSES

When it comes to nesting, birds can be divided into three groups. These groups are based on the location they select for nesting sites. Some birds such as the turkey, whip-poor-will, quail or killdeer build their nests on the ground. This group of birds is called *ground nesters.* Another group of birds is the *cavity or hole nesters.* These birds select nest sites in holes or cavities of trees. Some examples of cavity nesters are wood ducks, owls, woodpeckers and purple martins. A third group of birds is the *elevated nesters.* These birds build their nests above ground. These nests are usually constructed of twigs, grass or vines on the limbs of trees or shrubs.

Properly constructed and erected birdhouses provide excellent nesting sites for cavity nesters. There are only a few simple but important rules to follow:

1. Birdhouses can be made from a wide variety of materials. If you use wood, make sure it is treated to make it decay resistant.
2. Avoid the use of metal. Metal gets too hot and the birds could die from high temperature.
3. Provide ventilation and drainage. Several small holes in the bottom will provide drainage. Leave a crack where the sides meet the top to provide ventilation.
4. After the nesting season is over, take down your birdhouse, clean out old nest material and store for next year.
5. Fasten your birdhouses securely in the crotch of a tree, on a fence post or against the trunk of a tree.



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CAVITY NESTING BIRD

6. When selecting a location for birdhouses, make sure that food and water are close by.
7. Select a location that will be difficult for predators, such as cats, to get to the birdhouse. You may want to use a "predator guard."
8. Birdhouses should be spaced at least 30 feet apart. You can have too much of a good thing.

Before you build a birdhouse, learn what kind of birds are likely to nest in your area. Your leader or Extension agent should be able to help you. Use the dimensions in Table 1 to build your birdhouse. *Remember,* birds are selective in choosing their nesting sites. The materials that you use are not as important as using the right dimensions.

Table 1. Birdhouse Dimensions for Cavity Nesters

Species	Diameter of Entrance (inches)	Depth of Cavity (inches)	Floor of Cavity (inches)	Entrance Above Floor (inches)	Height Above Ground (feet)
Purple Martin	2½	6	6 x 6	1	15-20
Tree Swallow	1½	6	5 x 5	1-5	10-15
Carolina Wren	1½	6-8	4 x 4	1-6	6-10
House Wren	1¼	6-8	4 x 4	1-6	6-10
Nuthatch	1¼	8-10	4 x 4	6-8	12-20
Black-capped Chickadee	1 1/8	8-10	4 x 4	6-8	6-15
Tufted Titmouse	1¼	8-10	4 x 4	6-8	6-16
Flicker	2½	16-18	7 x 7	14-16	6-20
Downy Woodpecker	1¼	9-12	4 x 4	6-8	6-20
Hairy Woodpecker	1½	12-15	6 x 6	9-12	12-20
Red-headed Woodpecker	2	12-15	6 x 6	9-12	12-20
Screech Owl	3	12-15	8 x 8	9-12	10-30
Barn Owl	6	12-15	8 x 8	9-12	12-20
Bluebird	1 3/8	8	5 x 5	6	5-10
Crested Flycatcher	2	8-10	6 x 6	6-8	8-20
Sparrow Hawk	3	12-15	8 x 8	9-12	10-30
Wood Duck	3 x 4 (oval)	10-24	10 x 18	12-16	10-20

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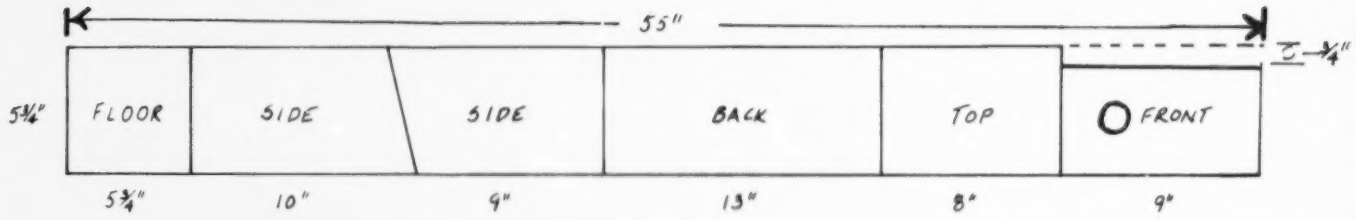


DESIGN FOR A BIRDHOUSE

seed cakes melt the suet in a pan over low heat. Pour a seed mixture into a muffin pan so that each mold is about three-fourths full of seed. Now pour the melted suet over the seeds in each muffin mold. Stir the seeds and let cool. Once cool you can place the individual seed cakes in a suet feeder, windowsill feeder or on a feeding table.

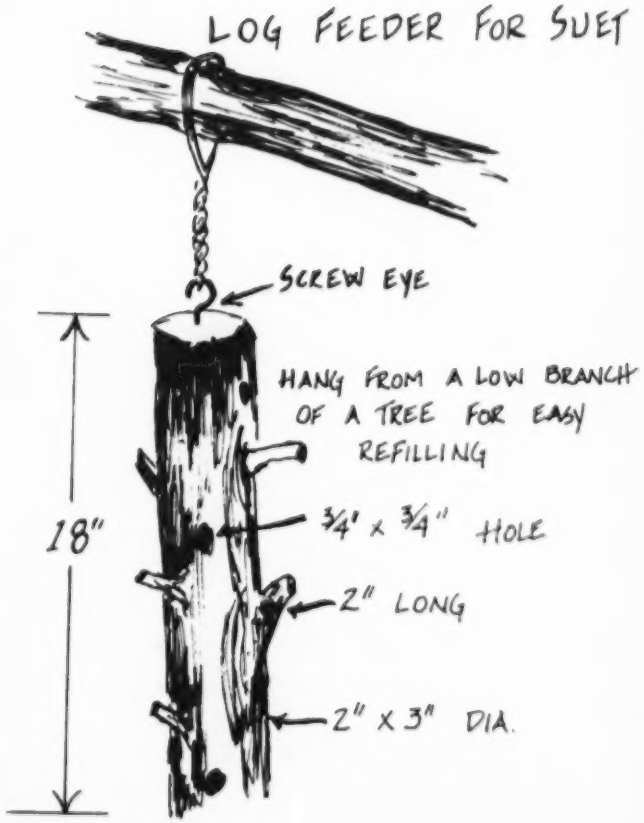
BIRD FEEDERS

Birds require an abundant supply of food. They also eat a wide variety of different kinds of food. Some birds are seed eaters, others eat fruit, some eat insects, while still others eat animals. Bird feeders can be used to supplement natural foods and attract birds all year long.

Bird feeders can be as simple or elaborate as you want to make them. Just remember the following rules:

1. Place your feeder so cats can not harm the birds that come to feed.
2. In cold weather, once you begin feeding birds be sure to continue feeding. Birds can become dependent upon your feeder. If you do not keep a continuous supply of food in your feeder during cold weather, they could starve before they find a new food supply.
3. Use a variety of foods. For the seed eaters you can either purchase a mixture of bird seed or mix your own. A good mixture is: five pounds of sunflower seed mixed thoroughly with 25 pounds of coarse chicken scratch feed.

You can usually get the ingredients from a local feed store. Insect-eating birds are fond of suet, the fat trimmings from meat. Beef suet is best. You can use the suet in a suet feeder or in seed cakes. To make



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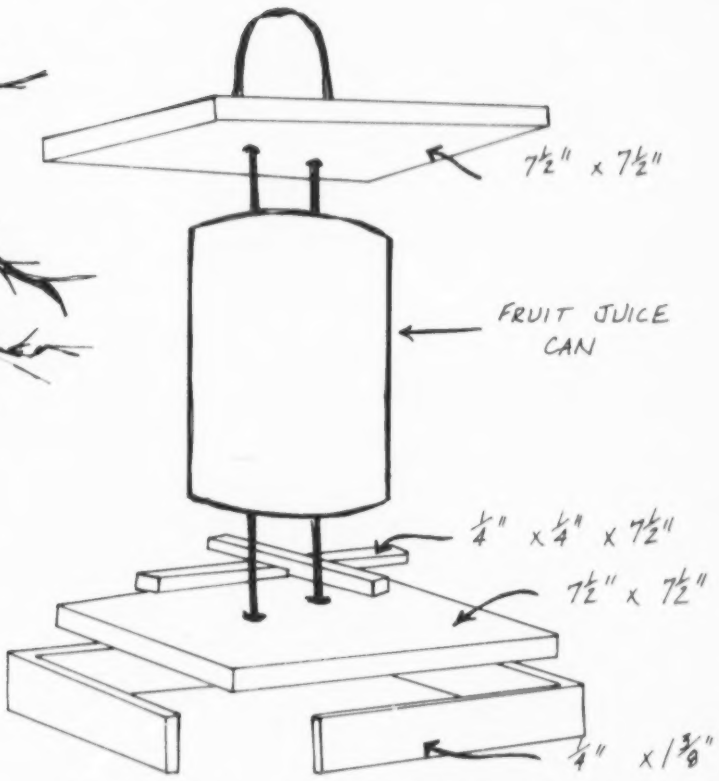
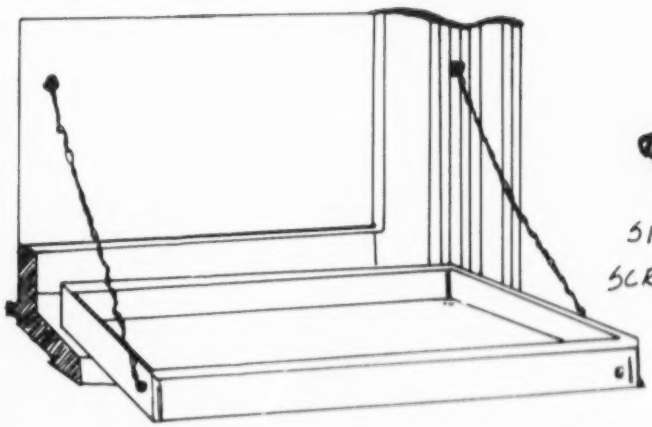
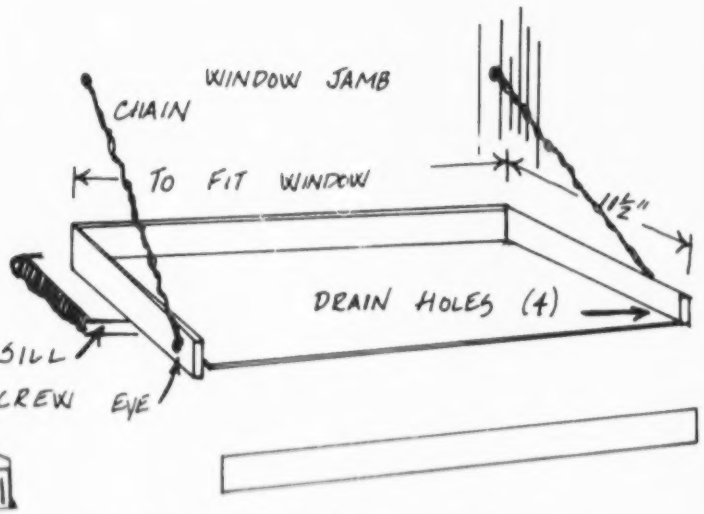
TIN CAN FEEDER



DESIGN FOR A TIN CAN FEEDER





WINDOW SILL FEEDER

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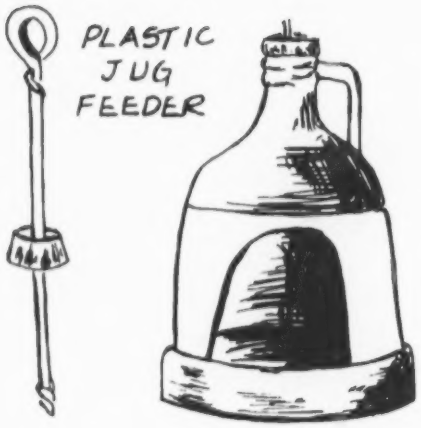
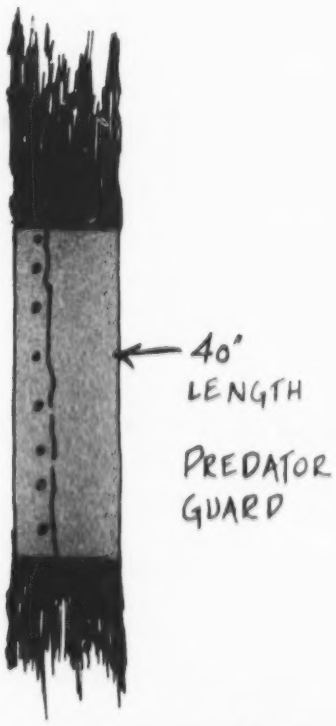


WATER

Water is important to birds for drinking and bathing. The most common mistake made with bird waterers is to make them too deep. Birds like shallow water. Be sure the water is no deeper than about three inches. Bird waterers can be made in a variety of shapes and sizes. Be sure to locate your waterer near cover so that predators, such as house cats, cannot catch any of the birds.

THINGS TO DO

1. Build and erect a birdhouse for several different kinds of birds that nest in your area.
2. Study the birds using your birdhouses. *Be careful not to disturb the birds.* Record your observations. Make notes on the following: When the birds first moved into the house; how long it took them to gather nesting materials; how many eggs are in the nest; how long it took the eggs to hatch; whether all of the eggs hatched; how long the chicks lived in the birdhouse after they hatched; whether both parents set on the eggs or only one; the role of the parents after the eggs hatched and how often the parents fed the young birds.
3. Give a demonstration on how to build a birdhouse and how to erect it.
4. Build a bird feeder for seed eaters. Record the kinds of birds, time of day, season of the year and food eaten by each bird you see at your feeder.
5. Build a suet feeder. Make the same kind of observations for the suet feeder that you did for the seed feeder. Did the same kinds of birds that used your seed feeder also feed at the suet feeder? How were they different?
6. Give a demonstration to your club on how to build different kinds of bird feeders. Show them what kinds of food to use and why.
7. Build a bird waterer. Study what kinds of birds use your bird waterer. Do they all use it for the same reason?



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ADDITIONAL READING AND REFERENCES

Attracting Birds to Your Garden. Sherry Gellner, editor. Lane Books, California.

A Guide to Field Identification—Birds of North America, by Chandler S. Robbins, Bertel Brun, & Herbert S. Zim, Golden Press, New York.

American Wildlife and Plants, by Alexander C. Martin, Herbert S. Zim and Arnold Nelson, Dover Publications, New York.

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COMMITTEE: Alvin C. Blake, Tennessee; Dan T. Gardner, Alabama; Dennis Goodman, Kentucky; James E. Miller, Arkansas; Lewis R. Shelton, III, Mississippi; Andrew Weber, North Carolina *(Vice Chairman)*; and James L. Byford, Tennessee *(Chairman)*.

SPECIAL ASSISTANTS: Rita Schrader, Ben Nottingham, Dale Powell.

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Bird-Feeding Tips from the Cornell Laboratory of Ornithology

	Chickadees, titmice, nuthatches	Finches	Cardinal, grosbeaks	Sparrows	Blackbirds	Jays	Wood-peckers	Orioles, tanagers	Humming-birds	Pigeons, doves	Quails, pheasants
Sunflower seed[1]	●	●	●	●	○	○	○				
Corn[2]		○		○	●	●				●	●
Millet[3]		○		○	○					○	○
Niger[4]		●									
Suet[5]	●					○	●	○			
Sugar water[6]								○	●		
Fruits[7]						○		●			

● preferred
○ readily eaten

Footnotes and guidelines on reverse.

GENERAL GUIDELINES FOR FEEDING BIRDS

- Birds' feeding habits vary by region, season, and among individual birds. Therefore, you may find exceptions to the food preferences shown on the chart. Seeds listed are those that attract the greatest variety of birds.

- Feeding birds need not be a complicated or expensive process. Most bird species can be attracted simply by providing sunflower seed, either on the ground or in an inexpensive feeder. Even scraps of stale bread, cake, or doughnuts may attract birds. Be sure that foods are not moldy or they may be harmful to birds.

- No evidence exists that birds depend on bird feeders for survival. Therefore, don't worry if you must stop feeding birds for awhile.

- Landscaping for birds is the best way to provide for their long-term needs. For example, consider planting berry bushes for fruit-eating birds, or perennial flowers for hummingbirds. Plantings can be attractive to both you and the birds.

CHART FOOTNOTES

1. Black oilseed preferred but striped seed eaten readily.

2. Cracked corn for finches and sparrows; dried whole-kernel corn for jays, pigeons and doves, quails and pheasants.

3. White millet highly preferred over red millet.

4. Seed of choice for small finches such as goldfinches, siskins, and redpolls. Also known as thistle.

5. Do not feed suet when outside temperature is above 70° F as suet may become rancid and harmful to birds.

6. Mix at no less than 4 parts water to 1 part sugar. Empty and thoroughly clean feeder at least weekly to prevent growth of mold, which may harm birds.

7. Raisins, currants, and sliced apples, oranges, and bananas. Fruits also may attract mockingbirds, robins, bluebirds, and waxwings, especially during winter.

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